

**IT IS THE VENDOR'S RESPONSIBILITY TO
CHECK FOR ADDENDUM PRIOR TO SUBMITTING PROPOSALS**

**REQUEST FOR PROPOSALS
SPECIFICATION NO. 05-053**

The City of Lincoln, Nebraska intends to enter into a contract and invites you to submit a sealed proposal for:

**CONSULTING SERVICES FOR
AUTOMATED VEHICLE LOCATION SYSTEM**

Sealed proposals will be received by the City of Lincoln, Nebraska on or before 12:00 noon Wednesday, **March 30, 2005** in the office of the Purchasing Agent, Suite 200, K Street Complex, Southwest Wing, 440 South 8th Street, Lincoln, Nebraska 68508. Proposals will be publicly opened at the K Street Complex, reading only the names of the firms submitting proposals.

Proposers should take caution if U.S. mail or mail delivery services are used for the submission of proposals. Mailing should be made in sufficient time for proposals to arrive in the Purchasing Division, prior to the time and date specified above.

CONSULTING SERVICES FOR AUTOMATED VEHICLE LOCATION SYSTEM FOR STARTRAN

1 GENERAL INFORMATION

- 1.1 The City of Lincoln's transit service (StarTran) is planning to procure advanced public transportation systems (APTS) to improve the efficiency and safety of its fixed-route and para transit services.
- 1.2 StarTran is seeking a consultant to define the APTS elements that will best meet its needs, and to help in the design, specifications, recommendation and installation of a APTS.
- 1.3 Elements of APTS that may be installed are primarily: automated vehicle location (AVL); stop annunciators; improved transit information systems; transit security; and transit signal priority.
- 1.4 The City has received a Federal Grant for this project and all Federal requirements must be met.
 - 1.4.1 Grant application attached.

2 NEEDS ANALYSIS

- 2.1 Consultant-s task will formalize the existing needs and review potential other needs that may be addressed through APTS that can be cost-effectively included in this project.
- 2.2 Consultant efforts will focus on defining the ITS needs and requirements for multiple participating agencies such as Metro Area Transit, Public Works & Utilities, Emergency Services, and Nebraska Department of Roads.
- 2.3 During this process, the consultant will review current capabilities and define future operational needs and abilities.
 - 2.3.1 This process will provide the basis for the functional requirements and technical specifications.
- 2.4 In addition to the transit agency-specific user needs, requirements relative to regional traveler and transit information systems will be reviewed and documented.
- 2.5 Data/information envisioned for transfer between StarTran, other City of Lincoln departments, the Nebraska Department of Roads (NDOR), and other external locations (such as web sites and kiosks) will be identified to ensure consistency with Regional Architecture and the region's needs for data sharing.
- 2.6 Upon identification of the needs, a detailed technical memorandum will be prepared defining existing capabilities and specific APTS User Needs and Requirements.
- 2.7 **Deliverables**
 - 2.7.1 Documentation of the ITS User Needs and Requirements identified in this task will be submitted in a two-stage process:
 - 2.7.1.1 Draft documentation of User Needs.
 - 2.7.1.2 Disposition of comments, consolidated and provided to the StarTran project manager.
 - 2.7.1.3 A final technical memorandum including incorporation of draft comments.
 - 2.7.1.4 Probable cost

3 SYSTEM DESIGN AND TECHNICAL SPECIFICATIONS

- 3.1 The consultant will prepare draft technical specifications for approval by StarTran.
- 3.2 The technical specifications will identify the system capabilities in response to the identified User Needs, and will result in a complete and cohesive system capable of addressing the system needs.
- 3.3 The specifications will address the purchase of all necessary components to include but not limited to hardware and software to respond to the User Needs.

- 3.4 Upon review, revision and final approval, the technical specifications will be provided to StarTran for inclusion in a Formal Bid package.
- 3.5 StarTran will complete the package with its standard contractual provisions and sections, such as those pertaining to vendor pre-qualification and DBE/WBE participation, as required.
- 3.6 **Deliverables:**
 - 3.6.1 The technical specifications will be submitted as follows:
 - 3.6.1.1 An initial draft of technical specifications.
 - 3.6.1.2 Disposition of written comments from StarTran, consolidated and provided by the StarTran project manager.
 - 3.6.1.3 The consultant will prepare a final set of technical specifications.

4 **PROCUREMENT AND IMPLEMENTATION SUPPORT**

- 4.1 Once the bid package containing the technical specifications has been released for bidding, the consultant will assist the StarTran throughout the procurement and implementation process.
 - 4.1.1 Help with responses to prospective bidders prior to bidding.
- 4.2 It is envisioned that the consultant's efforts may include, but is not necessarily limited to, the following tasks:
 - 4.2.1 Supporting a pre-proposal meeting and addressing technical issues as requested by StarTran.
 - 4.2.2 If appropriate and desired by StarTran, consultant will attend the in-person interviews.
 - 4.2.3 The consultant will provide a technical review of proposals to ensure that they address all technical requirements of the RFP.
 - 4.2.4 Once selection of a vendor for system implementation is complete, the consultant will be available to assist with contract negotiations.
- 4.3 Once the scope of work and procurement processes have been finalized with the proposed system vendor, the consultant will support the StarTran Project Manager to serve as a technical expert to provide guidance during the implementation process.
- 4.4 The consultant must be qualified to provide deployment assistance that includes the following:
 - 4.4.1 Technical and consistency reviews of material submitted by the vendor for approval.
 - 4.4.2 Track vendors implementation progress.
- 4.5 Deliverables
 - 4.5.1 Written monthly progress reports during installation and white paper reviews of vendor documentation.

5. **EVALUATION AND SYSTEM TESTING**

- 5.1 As part of the vendor's contract, they will be required to submit acceptance testing parameters, which are directly applicable to their installation.
- 5.2 The consultant will review the proposed tests to see that they fully test the components, subsystems and full system integration.
- 5.3 If needed, the consultant will conduct the acceptance tests as StarTran's proxy representative, and document the results.
 - 5.3.1 **Deliverable**
 - 5.3.1.1 A white paper review of the vendor's acceptance testing procedure, including recommendations for changes.

PROPOSAL
SPECIFICATION NO. 05-053
OPENING TIME: 12:00 NOON
DATE: Wednesday, March 30, 2005

The undersigned, having full knowledge of the requirements of the City of Lincoln for the below listed phases and the contract documents (which include Notice, Instructions, this Proposal, Specifications, Contract, and any and all addenda) and all other conditions of the Proposal, agrees to enter into a contract with the City the below listed fees for the performance of this Specification, complete in every respect, in strict accordance with the contract documents at and for fees listed below.

ADDENDA RECEIPT: The receipt of addenda to the specification numbers _____ through _____ are hereby acknowledged. Failure of any submitter to receive any addendum or interpretation of the specifications shall not relieve the submitter from any obligations specified in the request. All addenda shall become part of the final contract document.

1 each	Consulting Services for AVL System for StarTran	\$ _____
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AFFIRMATIVE ACTION PROGRAM: Successful bidder will be required to comply with the provisions of the City's Affirmative Action Policy (Contract Compliance, Sec. 1.16). The Equal Opportunity Officer will determine compliance or non-compliance with the City's policy upon a complete and substantial review of successful firm's equal opportunity policies, procedures and practices.

The undersigned signatory for the submitter represents and warrants that he has full and complete authority to submit this proposal to the City, and to enter into a contract if this proposal is accepted.

RETURN 2 COMPLETE COPIES OF PROPOSAL AND SUPPORTING MATERIAL.
MARK OUTSIDE OF BID ENVELOPE: SEALED PROPOSAL FOR SPEC. 05-053

COMPANY NAME

BY (SIGNATURE)

STREET ADDRESS or P.O. BOX

(PRINT NAME)

CITY, STATE ZIP CODE

(TITLE)

TELEPHONE NO. FAX NO.

(DATE)

EMPLOYER'S FEDERAL I.D. NO.
OR SOCIAL SECURITY NUMBER

ESTIMATED DELIVERY DAYS

E-MAIL ADDRESS

TERMS OF PAYMENT

INSTRUCTIONS TO PROPOSERS

CITY OF LINCOLN, NEBRASKA PURCHASING DIVISION

1. PROPOSAL PROCEDURE

- 1.1 Each RFP must be legibly printed in ink or by typewriter, include full name, business address, and telephone no. of the Proposer; and be signed in ink by the Proposer.
- 1.2 Response by a firm/organization other than a corporation must include the name and address of each member.
- 1.3 A response by a corporation must be signed in the name of such corporation by a duly authorized official thereof.
- 1.4 Any person signing a response for a firm, corporation, or other organization must show evidence of his authority so to bind such firm, corporation, or organization.
- 1.5 Proposals received after the time and date established for receiving offers will be rejected.

2. EQUAL OPPORTUNITY

- 2.1 Each proposer agrees that it shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, disability, national origin, age, or marital status. In the employment of persons, proposer shall take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to race, color, religion, sex, disability, national origin, age, or marital status.

3. DATA PRIVACY

- 3.1 Proposer agrees to abide by all applicable State and Federal laws and regulations concerning the handling and disclosure of private and confidential information concerning individuals and corporations as to inventions, copyrights, patents and patent rights.
- 3.2 The proposer agrees to hold the City harmless from any claims resulting from the proposer's unlawful disclosure or use of private or confidential information.

4. PROPOSER'S REPRESENTATION

- 4.1 Each proposer by signing and submitting an offer, represents that he/she has read and understands the specification documents, and the offer has been made in accordance therewith.
- 4.2 Each offer for services further represents that the proposer is familiar with the local conditions under which the work and has correlated the observations with the requirements of the RFP.
- 4.3 Proposer warrants and represents to the City that all software/firmware/hardware/equipment/systems developed, distributed, installed or programmed by Proposer pursuant to this Specification and Agreement.
 - 4.3.1 That all date recognition and processing by the software / firmware / hardware/equipment/system will include the four-digit-year format and will correctly recognize and process the date of February 29, and any related data, during Leap years; and
 - 4.3.2 That all date sorting by the software/

firmware/hardware/equipment/system that includes a "year category" shall be done based on the four-digit-year format. Upon being notified in writing by the City of the failure of any software/firmware/hardware/equipment/systems to comply with this Specification and Agreement, Contractor will, within 60 days and at no cost to the City, replace or correct the non-complying software/firmware/hardware/equipment/systems with software / firmware / hardware/equipment/systems that does comply with this Specification and Agreement.

5. INDEPENDENT PRICE DETERMINATION

- 5.1 By signing and submitting this RFP, the proposer certifies that the prices offered have been arrived at independently, without consultation, communication or agreement, for the purpose of restricting competition, with any other proposer competitor; unless otherwise required by law, the prices which have been quoted in this offer have not been knowingly disclosed by the proposer prior to RFP opening directly or indirectly to any other competitor; no attempt has been made, or will be made, by the proposer to induce any person or firm to submit, or not to submit, a response for the purpose of restricting competition.

6. SPECIFICATION CLARIFICATION

- 6.1 Proposers shall promptly notify the Purchasing Agent of any ambiguity, inconsistency or error which they may discover upon examination of specification documents.
- 6.2 Proposers desiring clarification or interpretation of the specification documents shall make a written request which must reach the Purchasing Agent at least seven (7) calendar days prior to date and time for response receipt.
- 6.3 Interpretations, corrections and changes made to the specification documents will be made by written addenda.
- 6.4 Oral interpretations/changes to Specification Documents made in any other manner, will not be binding on the City; proposers shall not rely upon oral interpretations.

7. ADDENDA

- 7.1 Addenda are written instruments issued by the City prior to the date for receipt of offers which modify or interpret the specification document by addition, deletion, clarification or correction.
- 7.2 Addenda will be mailed or delivered to all who are known by the City to have received a complete set of specification documents.
- 7.3 Copies of addenda will be made available for inspection at the office of the Purchasing Agent.
- 7.4 No addendum will be issued later than forty-eight (48) hours prior to the date and time for receipt of offers, except an addendum withdrawing the RFP, or addendum including postponement.
- 7.5 Proposers shall ascertain prior to submitting their offer that they have received all addenda issued, and they shall acknowledge receipt of addenda in their proposal.

8. ANTI-LOBBYING PROVISION

- 8.1 During the period between the bid close date and the contract award, bidders, including their agents and representatives, shall not directly discuss or promote their bid with any member of the City Council or City Staff except in the course of City-sponsored inquiries, briefings, interviews, or presentations, unless requested by the City.

9. EVALUATION AND AWARD

- 9.1 The signed proposal shall be considered an offer on the part of the proposer. Such offer shall be deemed accepted upon issuance by the City of purchase orders, contract award notifications, or other contract documents appropriate to the work.
- 9.2 No offer shall be withdrawn for a period of ninety (90) calendar days after the time and date established for receiving offers, and each proposer agrees in submitting an offer.
- 9.3 In case of a discrepancy between the unit prices and their extensions, the unit prices shall govern.
- 9.4 The RFP process is designed to be a competitive negotiation platform, where price is not required to be the sole determinative factor; also the City has the flexibility to negotiate with a select firm or selected firms to arrive at a mutually agreeable relationship.
- 9.5 A committee will be assigned the task of reviewing the proposals received.
- 9.5.1 The committee may request documentation from Proposer(s) of any information provided in their proposal response, or require the Proposer to clarify or expand qualification statements.
- 9.5.2 The committee may also require a site visit and/or verbal interview with a Proposer or select group of Proposers to clarify and expand upon the proposal response.
- 9.6 The offer will be awarded to the lowest responsive, responsible proposer whose proposal will be most advantageous to the City, and as the City deem will best serve their requirements.
- 9.7 The City reserves the right to accept or reject any or all offers, parts of offers; request new proposals, waive irregularities and technicalities in offers; or to award the RFP on a split-order basis, or lump-sum basis; such as shall best serve the requirements and interests of the City.

10. INDEMNIFICATION

- 10.1 The proposer shall indemnify and hold harmless the City, its members, its officers and employees from and against all claims, damages, losses, and expenses, including, but not limited to attorney's fees arising out of or resulting from the performance of the contract, provided that any such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property other than goods, materials and equipment furnished under this contract) including the loss of use resulting therefrom; is caused in whole or part by any negligent act or omission of the proposer, any subcontractor, or anyone directly or indirectly employed by any one of them or anyone for whose acts made by

any of them may be liable, regardless of whether or not it is caused by a party indemnified hereunder.

- 10.2 In any and all claims against the City or any of its members, officers or employees by an employee of the proposer, any subcontractor, anyone directly or indirectly employed by any of them or by anyone for whose acts made by any of them may be liable, the indemnification obligation under paragraph 10.1 shall not be limited in any way by any limitation of the amount or type of damages, compensation or benefits payable by or for the proposer or any subcontractor under worker's or workmen's compensation acts, disability benefit acts or other employee benefit acts.

11. LAWS

- 11.1 The Laws of the State of Nebraska shall govern the rights, obligations, and remedies of the Parties under this proposal and any agreement reached as a result of this process.

12. AWARD

- 12.1 The RFP process is designed to be a competitive negotiation platform, where price is not required to be the sole determinative factor; also the City has the flexibility to negotiate with a selected firm or firms to arrive at a mutually agreeable relationship.
- 12.2 The City shall be the sole judge as to merits of the proposal, and the City's decision will be final.
- 12.3 A committee will be assigned by the Mayor with the task of reviewing the proposals received.
- 12.3.1 The committee may request documentation from Proposer(s) of any information provided in their proposal response, or require the proposer to clarify or expand qualification statements.
- 12.3.2 A short list of firms from proposals submitted may be selected for a presentation to the committee and ranked by committee members.
- 12.4 Final approval to enter into contract negotiations with the top ranked firm will be by the Mayor of the City of Lincoln.
- 12.5 The City shall not be liable for any expense incurred in connection with preparation of a response to this RFP.
- 12.6 The contract document shall incorporate by reference all requirements, terms and conditions of the solicitation, proposal received and all negotiated details.

13. AFFIRMATIVE ACTION

- 13.1 The City of Lincoln-Lancaster County Purchasing Division provides equal opportunity for all bidders and encourages minority businesses and women's business enterprises to participate in our bidding process.

14. LIVING WAGE

- 14.1 The proposers agree to pay all employees employed in the performance of this contract, a base wage of not less than the City Living Wage per section 2.81.010 of the Lincoln Municipal Code. This wage is subject to change up or down every July.

APPLICATION FOR PARTICIPATION IN THE
FY04 ITS INTEGRATION COMPONENT
of the
ITS DEPLOYMENT PROGRAM

PROJECT DESCRIPTION

Project Identification Number and Name: AVL System for StarTran

Project Location: Lincoln, Nebraska

FY 05 Total to be Allocated: \$861,582.00

Submitted by: Brian Praeuner
StarTran
710 "J" Street
Lincoln, NE 68508

Project Contact: Glenn Knust
StarTran
710 "J" Street
Lincoln, NE 68508

Date: January 20, 2005

EXECUTIVE SUMMARY

In November 2003 funding for the implementation of an Automatic Vehicle Location System was included in the F.Y. 2004 Transportation Appropriations bill for StarTran. The goal of this integration project is to more effectively and efficiently monitor and manage bus fleet operations, resulting in improved scheduling and services to the community. Increasing driver and passenger safety and security is another goal of the project. The StarTran AVL project will be a stand alone project with leveraging the existing AVL communication infrastructure at Metro Area Transit (MAT) in Omaha. There are currently no other transportation systems that will be integrated with the AVL project, however, StarTran does have the potential of integrating with other transportation systems in the future. The lead agency for the project will be StarTran, a division of City of Lincoln, Public Works and Utilities department.

The total estimated cost to implement the above-described AVL system for utilization by StarTran is \$1,723,164. The \$1,723,164 AVL system project cost is proposed to be funded as follows:

\$861,582 – FTA §5208 Federal Aid (FY 2004-05 Federal Earmark)

\$861,582 – Local (City of Lincoln General Funds)

This cost assumes the above-described leverage of the existing MAT AVL communications infrastructure, and is comprised of the associated local computer software and vehicle equipment. Expected start date is September 2005 and expected completion date is July 2006.

TECHNICAL APPROACH

1. Background

StarTran is the public transit provider in Lincoln, Nebraska. StarTran is fully owned and operated by the City of Lincoln as a municipal service, organizationally a division of the Public Works & Utilities Department. The following are provided to define the scale and level of public transit services offered by StarTran:

StarTran Vehicles

56 full-size coaches

seating capacity: 32-37

standing capacity: 36

9 special services vans

seating capacity: 10

standing capacity: 10

Bus Routes

21 bus routes – see attached map

Demand responsive special
transportation service

Service Days/Hours

Weekdays, 5:15 a.m. - 7:10 p.m.
(Special transportation services to 10:00 p.m.)

Saturdays, 5:55 a.m. - 7:10 p.m.
No Sunday Service

Annual Ridership, 2002-03

Fixed Route = 1,481,211

Special Transportation Services = 48,031

StarTran identified three requirements for installing an AVL system:

1. Increase availability of transit information and dissemination
2. Improve overall dispatching and operating efficiency
3. Increase driver and passenger safety and security

It is expected that AVL system will improve the quality, timeliness and availability of customer information, because dispatchers can locate vehicles and report their locations to customer service staff. Currently, when patrons request bus information the customer service staff must call dispatch and the dispatcher calls the bus in question which creates lengthy telephone calls.

Dispatchers currently communicate with bus operators via radio communications. During peak periods dispatchers are inundated with radio calls from bus operators. Dispatchers comment that many radio calls from operators are unnecessary and could be handled more efficiently. The implementation of an AVL has the capability of an Mobile Data Terminal. The Mobile Data Terminal allows two way data messaging, which reduces driver-to-dispatch radio communications. The MDT allows for many operator and dispatcher calls to be made without requiring voice communications. Page 5 provides an example of fixed route mobile equipment implementation.

It is also expected that an AVL system would improve overall scheduling and operating efficiency which could increase productivity. It is expected that the system will develop more efficient route schedules that would have a positive impact on ridership.

Increase driver and passenger safety and security is another requirement for implementing an AVL system. It is expected that an AVL system will help reduce passenger assaults and other criminal acts on the bus. Criminal acts are expected to be thwarted because the police will be able to respond quickly to an incident with accurate information from the AVL system. In the event of such an incident StarTran dispatchers will be able to contact local police personnel and provide location information in an expedient manner. The additional knowledge that dispatchers

have of vehicle locations is also expected to aid maintenance staff to quickly reach bus mechanical breakdowns.

Homeland Security measures will also be stressed as part of this project. For instance, in the event that a disaster would occur in Omaha and render Metro Area Transit's server useless then StarTran's server could be used as a back-up system for MAT.

Project's expected impact:

The project's expected impact will be the ability of StarTran to more effectively and efficiently monitor and manage bus fleet operations, resulting in improved scheduling and services to the community, and increase the safety of StarTran services.

One example of an expected impact is through vehicle tracking. The AVL system can identify when vehicles are on and off route and alert dispatchers to off-route vehicles. This function may be used for such activities as alerting new operators if they have made a mistake, or monitoring operators taking shortcuts to make up time. Possessing exact location of vehicles will also direct field supervisors to locations where they could be most effective.

Another expected impact will be improved customer service. By providing customers with exact location of buses and expected arrival times will be a key component in increasing customer service. It is expected that the project will improve on-time performance. This is particularly important during inclement weather such as during winter months that can cause serious delays. During such weather dispatchers will have the capability to implement supplemental service in the event of bus delays. Page 7 shows an example of a Public Transportation Market Package.

Project integration:

The AVL system project would leverage the existing AVL communication infrastructure at Metro Area Transit (MAT), the public transit provider in Omaha. Connecting to the existing Metro Area Transit receiver equipment would significantly reduce the initial costs associated with the project. StarTran will own its own server and will have complete autonomy over its' server capabilities.

Initially, StarTran will have a strong linkage for hardware sharing with Metro Area Transit and City of Lincoln Public Works and Utilities. There will be opportunities for future expansion to other entities for data sharing. The type of hardware sharing will include:

- Server will be used as redundant backup
- Data sharing to be coordinated through Nebraska Department of Roads

The server operated by StarTran will be used as a "back-up" system to the server operated by Metro Area Transit and MAT's server will be used in same capacity for StarTran. This will be integral in the event of a national security issue in either city that would render a server inoperable. The StarTran server will be flexible and able to be expanded in order to accommodate any integration with public and private agencies. StarTran will also share data with any such public/private agencies as need be.

The servers located at each site will have the capacity to efficiently handle the total amount of vehicles from each transit systems. Firewalls will be setup between each system to isolate the individual system to secure agency priority data. Both transit agencies will have to agree to open firewalls for sharing information as homeland security issues will have to be met. The servers will be tied together by Virtual Public Network.

Data archiving will be an important component of the software system. The system will have the capability to classify, store and archive data.

Operational Issues:

An intergovernmental agreement will be developed between the City of Lincoln/StarTran and Metro Area Transit Authority in Omaha. Such intergovernmental agreement will address the operating guidelines for each system such as:

- Data separation
- Responsibility of hardware and software maintenance
- Restrictions on access to data

For tower communications, StarTran will have to either install a new tower or use existing cell or radio tower in Lincoln/Lancaster County. We will not utilize MAT's tower capabilities.

It is acknowledged that other local departments and agencies, including Engineering Services/Street Maintenance, and public safety agencies (i.e., Police, Fire and Emergency Management) will be also implementing AVL systems in the future. Compatibility of the StarTran AVL system with these other services is essential, and will be assured.

The total estimated cost to implement the above-described AVL system for utilization by StarTran is \$1,723,164. The \$1,723,164 AVL system project cost is proposed to be funded as follows:

\$861,582 – FTA §5208 Federal Aid (FY 2004-05 Federal Earmark)
\$861,582 – Local (City of Lincoln General Funds)

This cost assumes the above-described leverage of the existing MAT AVL communications infrastructure, and is comprised of the associated local computer software and vehicle equipment.

The project would result in the inclusion of the above-described Vehicle Tracking Capabilities, maintenance monitoring capabilities, and Mobile Data Terminal and Report Generation. Other features will be accommodated, including the scheduled Automated Fare Payment System (F.Y. 2006-07), and research/operational improvements as well as the other above-described features, as appropriate.

2. Project Description

The proposed project has the potential of integrating with other public and safety agencies, as described above. Currently no city/county or private agencies have Automatic Vehicle Location Systems in place.

The proposed project is expected to accomplish the following items:

- Increased overall dispatching and operating efficiency;
- More reliable service;
- Quicker response to service disruptions;
- Inputs to passenger information systems;
- Increased driver and passenger safety and security;
- Quicker notice of mechanical problems with the vehicles;
- Inputs to traffic signal priority system
- More extensive planning information collected at a lower cost than manual methods.
- Increased awareness of homeland security

This project seeks to correct or improve a number of surface transportation problems/shortfalls such as:

Improve bus stop annunciation capabilities. Currently bus operators call out major stops at intersections. An ADA annunciation system will ensure all stops are announced according to ADA regulations.

Improve communication between dispatchers and supervisors. The implementation of a Mobile Data Terminal would reduce routine radio calls thus allowing more efficient radio calls.

Improve the capability to inform passengers of predicted bus arrival times. Currently, when patrons call in to request bus information the customer information staff must call dispatch operations and the dispatcher calls the bus in question to obtain location information and then the dispatcher relays the information to the customer information staff. This type of interchange creates lengthy and inefficient telephone communication. Telephone information staff will have computer monitors to provide customers with real-time bus information as part of the AVL project.

Improve customer relations. AVL project will have a playback function in investigating customer complaints. The project will also have the capability of displaying real-time information via website so patrons can obtain real-time information from their homes. Installing advanced traveler information kiosks at key boarding locations is another amenity that could be implemented.

At a minimum, each AVL implementation includes a specific location technology (or technologies) and a method of transmitting the location data from the bus to the dispatcher. Additionally, each system typically has one or more tie-ins to other features, including:

- Vehicle Tracking Capabilities – utilization of computer-aided dispatch system displays route information, and determines schedule adherence. Utilized also by customer service staff to address customer concerns and complaints.
- Mobile Data Terminal – allows two-way data messaging, which reduces driver-to-dispatch radio communications.
- Report Generation – produces data utilized for required and planning-related documentation.
- Traffic Signal Priority – affords opportunity to reduce travel time through signalized intersections, as necessary.
- Automated Fare Payment Systems – utilizes electronic fareboxes which enable patrons to utilize a debit card for fare transactions.
- Vehicle Component Monitoring – affords notification to dispatch when bus engine conditions are not in tolerance.

Additionally, video cameras will be installed on all StarTran buses and paratransit vehicles as part of AVL project.

Categorization of Priorities of the Project Partnership in Addressing ITS Goal Areas:

Project Priority	Goal Area	Measure
High Medium X Low None/NA	Safety	<ul style="list-style-type: none"> - Reduction in the overall rate of accidents - Reduction in the rate of bus to automobile crashes resulting in fatalities - Reduction in the rate of crashes resulting in injuries
High X Medium Low None/NA	Mobility	<ul style="list-style-type: none"> - Reduction in travel time delay - Reduction in travel time variability
High X Medium Low None/NA	Productivity	<ul style="list-style-type: none"> - Cost Savings
High Medium Low X None/NA	Energy and the Environment	<ul style="list-style-type: none"> - Decrease in vehicle emissions - Decrease in vehicle energy consumption
High X Medium Low None/NA	Customer Satisfaction	<ul style="list-style-type: none"> - Ratings cutting across all other goal areas

3. Rural Projects

Currently there are no ITS infrastructure components identified in rural areas. StarTran AVL project does have potential of integrating with public and private agencies in the rural area.

4. Possible Systems to be Integrated

StarTran's project has potential of integrating with the following systems:
(No current project agreements have been developed at this time).

A. Arterial Management Systems

1. City of Lincoln Metropolitan Planning Organization

B. Freeway Management Systems

1. State of Nebraska - Department of Roads

C. Transit Management Systems

1. City of Lincoln Public Works and Utilities - StarTran
2. Omaha Metro Area Transit

D. Incident Management Systems

1. City of Lincoln Metropolitan Planning Organization
2. State of Nebraska

E. Electronic Fare Payment

1. City of Lincoln Metropolitan Planning Organization

F. Electronic Toll Collection

1. N/A

G. Crash Prevention and Safety

1. State of Nebraska - Department of Roads
2. City of Lincoln Metropolitan Planning Organization

H. Emergency Management

1. Lancaster County Emergency Management

I. ITS/CVO

1. State of Nebraska - Department of Roads

J. Traveler Information

1. State of Nebraska - Department of Roads
2. City of Lincoln Metropolitan Planning Organization

K. Information Management - Data Archiving

1. City of Lincoln Metropolitan Planning Organization

L. Road Weather Management Systems

1. State of Nebraska - Department of Roads
2. City of Lincoln/Metropolitan Planning Organization

M. Intermodal Freight

1. State of Nebraska - Department of Roads

N. Other ITS Systems

1. City of Lincoln Metropolitan Planning Organization

O. Operations and Maintenance

1. City of Lincoln: Metropolitan Planning Organization
 - a. Fire Department
 - b. Parks and Recreation Department
 - c. Lincoln Police Department

Although not currently implemented it will be emphasized that StarTran AVL project will be integrated with the following systems:

C.1. with C.2.

C.1. with A.1.

C.1. with D.1.

C.1. with H.1.

C. 1. with O.1

C.1. with N.1.

C.1. with K.1.

5. Integration Approach

Those systems identified above that are within Lancaster County will be integrated into the AVL system by the potential sharing of StarTran's server. The server will be owned and operated by StarTran/City of Lincoln. StarTran's server will be used as a "back-up" system to the server operated by Metro Area Transit and MAT's server will be used in the same capacity for StarTran. The server capacity is able to handle 800 vehicles. For future years the server will have the capacity to expand in order to handle more vehicles. Based on future integration opportunities with other entities the server will be able to add an additional 400 vehicles with 10 years of implementation. Server capacity will be expandable beyond 10 years as well. Those other

systems identified and not within Lancaster County would have a tie in to our server in that they would have the capability via internet to view and monitor StarTran services.

This deployment application will be utilized and integrated with the Project Level Architecture that will be developed before implementation of AVL system.

6. Architecture

A Regional ITS Architecture is currently under development. The Region comprises of the City of Lincoln, Lancaster County and District-1, Nebraska Department of Roads. The City of Lincoln, Public Works and Utilities Department has contracted with a professional engineering firm to assist in the development of the Regional ITS Architecture. The City of Lincoln will be the lead agency for the project. The contact and person responsible for the project is Virendra Singh with the City of Lincoln, Public Works and Utilities Department. Mr. Singh can be reached at 402- 441-7711 or via e-mail to vsingh@ci.lincoln.ne.us. The Regional Architecture will provide a unified framework for integration, that guides the coordinated deployment of ITS programs within the public and private sectors, including the AVL project proposed by StarTran.

The AVL Project Level Architecture will be integrated with the Lincoln/Lancaster MPO and NDOR District-1 ITS Regional Architecture.

7. ITS Standards

ITS Standards contact: Glenn Knust
Organization: StarTran

Address: 710 J Street
Phone: 420.441.8317
Fax: 402.441.7055
E-mail: gknust@ci.lincoln.ne.us

ITS Standards contact: Virendra Singh
Organization: City of Lincoln Public
Works&Utilities
Address:
Phone: 402. 441.7711
Fax: 402.441.6576
E-mail: vsingh@ci.lincoln.ne.us.

StarTran will use applicable NTCIP standards for the deployment of this system (project). The project agrees to follow the ITS Standards Testing approach as outlined in the "Guidelines for Participation in the FY03 ITS Integration Component of the ITS Deployment Program." The proposed integration project will cooperate with the analysis of the project as a potential test site for the US DOT sponsored ITS Standards Testing Program and agrees to serve as an ITS standards testing site if selected by the testing program. As part of the project and the development of the functional requirements standards will be used and documented that allow for information exchange to other systems. The Standards Strategy will use approved DOT standards.

8. Evaluation of Benefits

Evaluation Contact: Glenn Knust

Organization: StarTran

Address: 710 J Street

Phone: 402.441.

Fax: 402.441.7055

E-mail: gknust@ci.lincoln.ne.us

The proposed project agrees to perform a local evaluation funded from Project resources and submit a Local Evaluation Report documenting the lessons learned in meeting project goals and objectives. The Local Evaluation Report will include the following evaluation products/activities:

- ▶ Provide a brief lessons learned report on the technical and institutional issues encountered in integrating ITS components.
- ▶ Produce a lessons learned report on the experiences, challenges and approaches used in achieving consistency with the National ITS Architecture and/or implementation of ITS standards.

The proposed project will also provide cost accounting data. Both operations and maintenance start up and life cycle costs are of particular importance. Further, the project will collect, document, and annually report cost accounting data.

If the proposed integration project is selected for an independent evaluation, the proposed integration project will cooperate with the independent evaluators and participate in evaluation planning and progress review meetings to ensure a mutually acceptable, successful implementation of the independent evaluation.

REPORT REQUIREMENTS & SCHEDULE

9. Reporting Requirements

The proposed integration project will conform to the following reporting requirements:

- ▶ The EDL Reporting Requirements
- ▶ The Quarterly Reporting Requirements

10. Start Date:
September 2005

11. Expected Completion Date
December 2006 - Testing of equipment/adjusting/training of staff

12. Milestones and Expected Completion Date

Milestone:	Expected Completion Date:
1. Start bid process	February 2005
2. Interview contractors	March 2005
3. Select contractors/sign contracts	May 2005
4. Develop Project Level Architecture per FTA requirements	August 2005
5. Install AVL equipment and associated software	September 2005
6. Complete installation	July 2006
7. Testing of equipment and staff training- complete project	December 2006

FINANCIAL PLAN

It is intended that funding for the proposed integration project will be obligated through the use of an FHWA Procurement Agreement

13. Integration/Rural Infrastructure Amount

Phase 1: AVL Integration Project

Total Amount to be Allocated: \$861,582

Minimum Required for Integration Activities, Rural Infrastructure Deployment or CMS/DMS deployment as part of an AMBER Program \$1,206,215

Amount Used for Integration Activities: \$1,206,215

Amount Used for CMS/DMS Deployment as part of an AMBER Program: \$0

Amount Used for Rural Infrastructure Deployment: \$0

Total Amount for Integration Activities, Rural Infrastructure Deployment and CMS/DMS: Deployment as part of an AMBER Program \$1,206,215

Identify Each Integration Activity, Rural Infrastructure Deployment, or CMS/DMS Deployment as part of an AMBER Program.	Specify Amount of Funding for Each Integration Activity, Rural Infrastructure Deployment, or CMS/DMS as part of an AMBER Program
AVL Integration Project	\$861,582 (all of 50% Congressionally Designated Funding)
AVL Integration Project	<u>\$344,633 (20% Non-Federal match, City of Lincoln)</u>
Total	\$1,206,215

14. 20% Minimum Match Amount: \$344,633

Identify Non-Federal Funding Source	Identify Type of Funds	Identify Major:	Specify Amount of Funding
City Funds	Cash	Integration Activities	\$344,633

15. 30% Match Amount: \$516,949

Identify Non-Federal Funding Source	Identify Type of Funds	Identify Major:	Specify Amount of Funding
City Funds	Cash	Integration Activities	\$516,949

PARTICIPATING AGENCIES AND ORGANIZATIONS

16. Project Participants and Roles and Responsibilities

Lead Agency: StarTran
710 "J" Street
Lincoln, NE 68508

Roles and Responsibilities: Responsible for implementation, operations, maintenance and monitoring of project.

Contact: Glenn Knust
710 "J" Street
Lincoln, NE 68508

- ▶ Agency Responsible for Long-Term O & M: StarTran/City of Lincoln

Roles and Responsibilities: Responsible for implementation, operations, maintenance and monitoring of project

Contact: Glenn Knust

Participating Agency: Metro Area Transit; Omaha, NE

Roles and Responsibilities: Back up server facility

Contact: Linda Barritt